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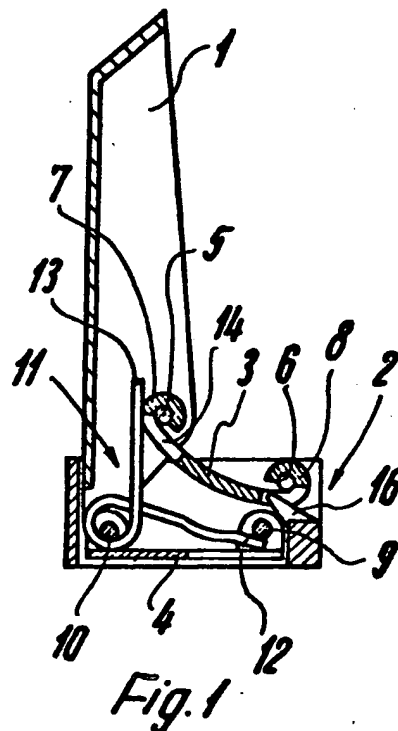
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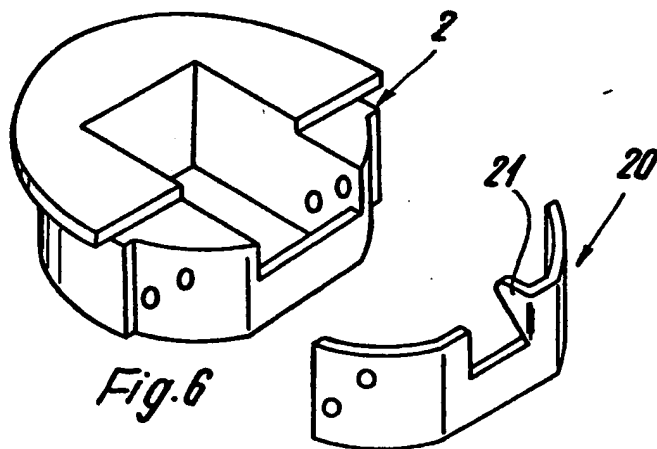
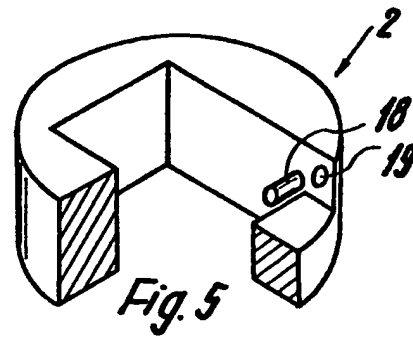
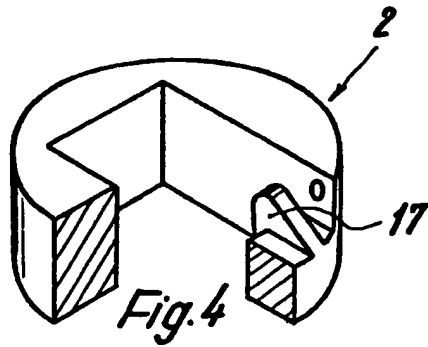
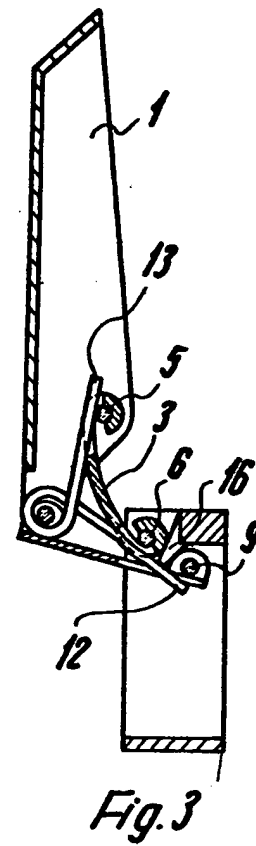
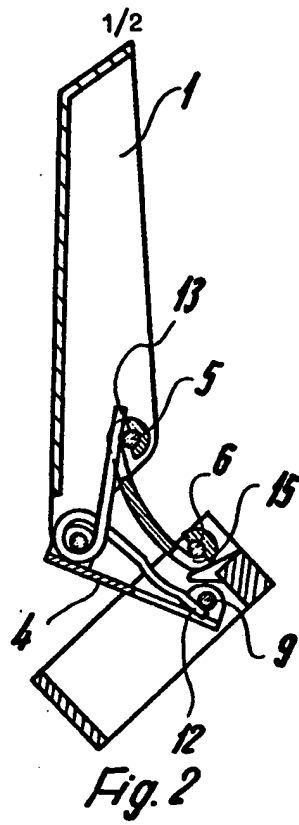
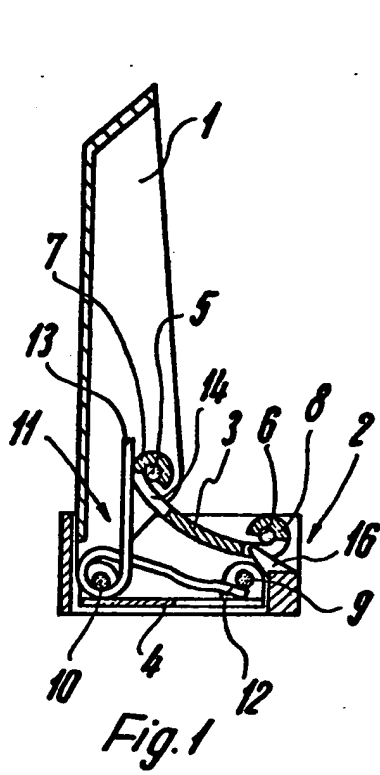
(54) Furniture hinge having a leg spring

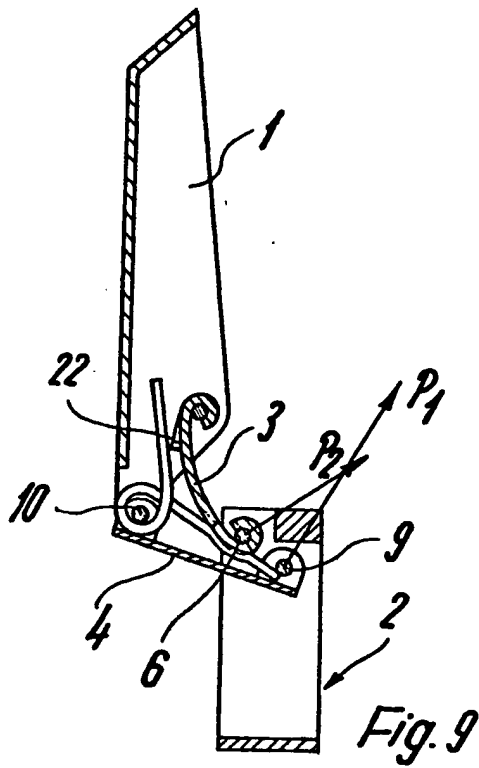
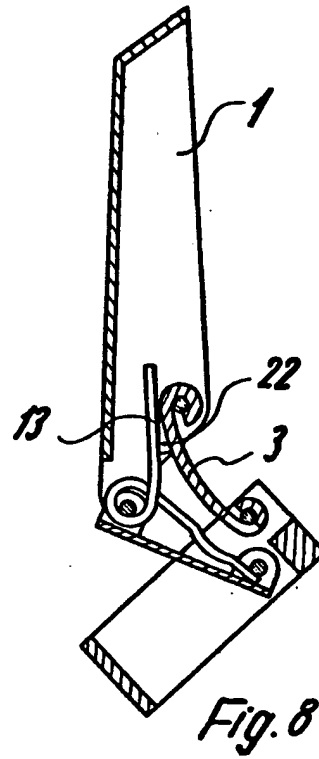
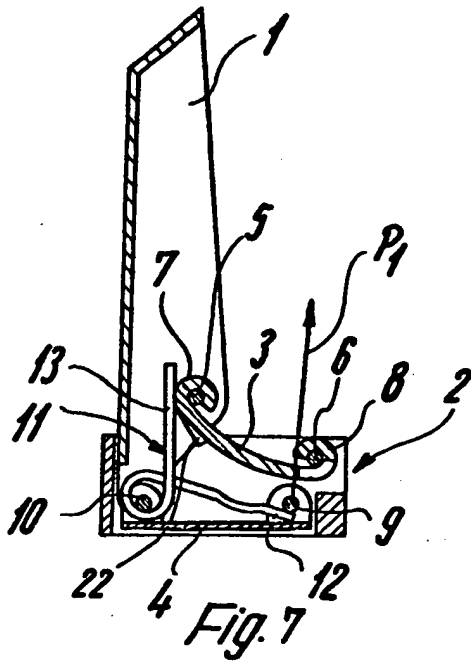
(57) A furniture hinge having a housing (2) for fitting into a recess in an article of furniture, a hinge arm (1) securable to another part of the article of furniture, two hinge links (3, 4) pivoted at 5, 6, 9, 10 between the housing (2) and the hinge arm (1), and a leg spring (11) around the hinge pin 10 engaging pin 9 and link 3. The housing (2) is provided with an abutment (16), against which the end (12) of the leg spring (11), bears in the last part of the opening movement and in the first part of the closing movement, and the abutment is arranged adjacent to the upper hinge pin (6). In an alternative construction the hinge link (3) a projection which is arranged adjacent the hinge pin (5)

and against which the end (13) of the leg spring (11), bears in the last part of the opening movement and in the first part of the closing movement.



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SPECIFICATION

Furniture hinge having a keeper means comprising a leg spring

5 A furniture hinge has already been proposed, having a housing which can be let into a recess in a part of an article of furniture, a hinge arm which can be secured to another
10 part of the article of furniture, two hinge bars which are disposed between the housing and the hinge arm and which are pivotally connected to hinge pins, and a keeper means which comprises a leg spring and which embraces around the hinge arm hinge pin which
15 moves into the housing in the closed position, and which bears by way of one leg end against the hinge pin which is disposed adjacent the bottom of the housing, and bears by
20 way of the other leg end in the region of the second hinge pin of the hinge arm against the hinge bar which is pivotally mounted on said hinge pin.

In the closed position, the leg spring exerts
25 a closing force which must be overcome in the movement of opening the door. Before the door reaches its open position, the leg spring assists the opening movement so that the door is moved into the open position with a
30 relatively high force.

The invention is based on the problem of constructing the furniture hinge in such a way as to avoid the door being slammed open under the influence of the leg spring.

35 According to the invention, this problem is solved in that the housing is provided with an abutment against which the end of the leg of the leg spring which engages into the housing bears in the last part of the opening move-
40 ment and in the first part of the closing movement and the abutment is arranged adjacent to the upper hinge pin which is fixed to the housing, or that the hinge bar which leads to the hinge pin which is disposed outside of
45 the housing in the closed position of the hinge has a projection which is arranged adjacent the hinge pin and against which the leg of the spring which projects into the hinge arm, bears in the last part of the opening movement and
50 in the first part of the closing movement.

The above-mentioned end of the leg of the leg spring, which bears against the abutment in the last part of the opening movement, cannot produce any additional opening force,
55 from the moment at which it bears against the abutment.

As soon as the leg of the spring which projects into the hinge arm comes into co-
60 operation with the above-mentioned projection, a torque is produced, with respect to the axis of rotary movement of the door, which opposes the torque produced by the leg of the spring which projects into the housing. As these torques substantially cancel each other
65 out, the door is moved into the open position

only under the influence of a relatively low resulting torque.

Embodiments of the invention are described hereinafter and illustrated in the drawings, in
70 which:

Figure 1 shows a view in vertical section of a furniture hinge in the closed position,

Figure 2 shows the furniture hinge of Fig. 1 in a position in which it is open to about 45°.

75 Figure 3 shows the furniture hinge in a 90° open position,

Figure 4 shows a view of part of the hinge housing provided with an abutment,

80 Figures 5 and 6 show further embodiments of housings provided with an abutment,

Figure 7 shows a view in vertical section of a further embodiment of a furniture hinge in the closed position,

85 Figure 8 shows the furniture hinge of Fig. 7 in a position in which it is opened to about 45°, and

Figure 9 shows the furniture hinge of Figure 7 in a 90° open position.

The furniture hinge shown in Fig. 1 has a
90 hinge arm 1 which is fixed for example to the body of an article of furniture, and a housing 2 which can be fitted into a recess in a door and which is connected to the hinge arm 1 by way of a hinge bar 3 and a hinge bar 4. The
95 hinge bar 3 is mounted pivotally on hinge pin 5 which is fixed in the hinge arm, and on a hinge pin 6 which is fixed in the housing, and engages around the above-mentioned hinge pins with end rolled portions 7 and 8. The
100 hinge bar 4 is mounted pivotally on a hinge pin 9 which is fixed in the housing and on a hinge pin 10 which is secured in the hinge arm. It will be seen from Fig. 1 that in the closed position of the hinge the hinge pin 10
105 of the hinge arm 1 moves into the housing 2. The hinge pin 10 is embraced by a leg spring 11 which bears by way of the end 12 of one leg against the hinge pin 9 of the housing 2, which is adjacent to the bottom of the hous-
110 ing, while at the end 13 of its other leg the spring bears in the region of the hinge pin 5. In the position shown in Fig. 1, the end 13 of the leg lies against the end rolled portion 7 of the hinge bar 3 which is provided with an
115 opening 14 in the region of the associated leg of the leg spring 11.

The hinge bar is provided with an opening 15 in the region of the hinge pin 6.

In the embodiment shown in Figs. 1 to 3,
120 the housing 2 is provided with an abutment against which the end 12 of the leg of the leg spring 11 bears in the last part of the opening movement. While the end 12 of the leg of the leg spring still lies against the hinge pin 9 in the position of the hinge shown in Fig. 2, the
125 end of the leg has moved away from the hinge pin 9 and lies against the abutment 16, in the open position as shown in Fig. 3. The point of contact with the abutment 16 is
130 adjacent the hinge pin 6 so that the end 12 of

the leg of the leg spring does not apply an effective opening force to the door which is moving into the open position, in the last part of the door opening movement. This reliably prevents the door from being moved abruptly into the open position.

The housing shown in Fig. 4 has an abutment 17 which is intended to co-operate with the end 12 of the leg of the leg spring 11, and is of a triangular configuration. The abutment 17 is integral with the hinge housing 2.

In the embodiment shown in Fig. 5, the abutment 18 is in the form of a cylindrical pin. The cylindrical pin is disposed adjacent the opening 19 which accommodates the hinge pin 6.

In the embodiment shown in Fig. 6, a shaped member 20 is secured to the housing 2. The shaped member 20 can be produced from sheet metal and has an abutment 21. The shaped member 20 is fitted to the housing 2 from the outside and is connected to the housing for example by way of the hinge pins 6 and 9.

In the embodiment shown in Figs. 7 to 9 the leg spring 11 bears by way of the end 12 of one of its legs against the hinge pin 9 of the housing, which hinge pin is disposed adjacent the bottom of the housing, while the end 13 of the leg of the leaf spring, which projects into the hinge arm 1, bears against the hinge bar 3 or against a projection 22 which is connected to or integral with the hinge bar 3.

Fig. 7 shows that the end 12 of the leg of the leg spring 11, which bears against the hinge pin 9, produces a force P_1 which endeavours to hold the hinge and thus the door in the closed position. In the course of the opening movement, the force P_1 moves towards the axis of rotary movement of the door so that the torque which is produced by the force P_1 with respect to the said axis, becomes zero in the open condition of the hinge, in which the force P_1 passes through the axis of rotary movement of the door. In the course of the further opening movement, the force P_1 produces a torque which tends to move the door into the open position.

The co-operation between the projection 22 of the hinge bar 3 and the limb 13 of the spring 11 produces a counteracting force P_2 which acts in the hinge pin 6 and whose value depends on the deformation of the leg 13 of the leg spring 11. The value of the force P_2 is thus also a function of the configuration of the projection 22.

In the embodiment illustrated, the projection 22 is of a triangular configuration and is integral with the hinge bar 3.

In the last part of the opening movement, the force P_2 produces, relative to the axis of rotary movement of the door, a counteracting moment opposing the torque which is attributed to the force P_1 . Under the influence of

the resulting torque, the door moves into the open position without an abrupt and sudden impact.

It will be seen from Figs. 7 and 8 that the leg 13 of the leg spring does not lie against the projection 22 over the first part of the opening movement. Contact between the leg 13 and the projection 22 begins in Fig. 8 which shows the hinge in a 45° open position.

CLAIMS

1. A furniture hinge having a housing which can be let into a recess in a part of an article of furniture, a hinge arm which can be secured to another part of the article of furniture, two hinge bars which are disposed between the housing and the hinge arm and which are pivotally connected to hinge pins, and a keeper means which comprises a leg spring and which embraces around the hinge arm hinge pin which moves into the housing in the closed position, and which bears by way of one leg end against the hinge pin which is disposed adjacent the bottom of the housing, and bears by way of the other leg end in the region of the second hinge pin of the hinge arm against the hinge bar which is pivotally mounted on said hinge pin, characterised in that the housing is provided with an abutment against which the end of the leg of the leaf spring which extends into the housing, bears in the last part of the opening movement and in the first part of the closing movement, and the abutment is arranged adjacent to the upper hinge pin which is fixed to the housing, or that the hinge bar which leads to the hinge pin which is disposed outside of the housing in the closed position of the hinge has a projection which is arranged adjacent the hinge pin and against which the leg of the leg spring, which projects into the hinge arm, bears in the last part of the opening movement and in the first part of the closing movement.

2. A furniture hinge according to claim 1 wherein the abutment is provided between the hinge pins which are fixed with respect to the housing.

3. A furniture hinge according to claim 1 or claim 2 wherein the abutment is integral with the housing and is formed as an inwardly extending projection.

4. A furniture hinge wherein the abutment is integral with a shaped member which engages partly around the housing from the outside and which is fixedly connected to the housing.

5. A furniture hinge according to claim 1 wherein the projection which is associated with the hinge bar co-operates with the leg of the spring, which projects into the hinge arm, over an angular range of 45°.

6. A furniture hinge according to claim 1 or claim wherein the projection is integral with

the hinge bar.

7. A furniture hinge according to claim 1, substantially as hereinbefore described with reference to Figs. 1 to 3, 4, 5, 6 or 7, or 7 as

- 5 modified or not by 8 or 9 of the accompanying drawings.

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